

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 18. (Cancelled)

19. (Previously Presented) A read head, comprising:

a GMR spin valve stack including at least a pinned layer, a free layer, and a stabilization layer including a pair of separated regions of patterned exchange bias material, each region of patterned exchange bias material being disposed over a respective one of opposite ends of the free layer; and

a pair of shields, one disposed on either side of the GMR spin valve stack, with one of the shields being formed to include integral side shields that substantially enclose the free layer between the pair of shields.

20. (Original) A read head as defined in claim 19, wherein the GMR spin valve stack is configured to operate in a current perpendicular to plane (CPP) mode.

21. (Original) A read head as defined in claim 20, wherein the pair of shields are electrically conductive and wherein the GMR spin valve stack includes an electrode at the top thereof and an electrode at the bottom thereof.

22. (Original) A read head as defined in claim 19, wherein the GMR spin valve stack is configured to operate in a current in plane (CIP) mode.

23. (Original) A read head as defined in claim 22, further including electrically conductive leads that are in a gap formed between the pair of shields.

24. (Original) A read head as defined in claim 19, further including a layer of insulating material forming a gap between the pair of shields in the regions at either end of the GMR spin valve stack.
25. (Original) A read head as defined in claim 24, wherein the gap layer is deposited in a self-aligned process.
26. (Original) A read head as defined in claim 24, wherein the gap layer includes a portion that covers at least portions of the sides of the stack.
27. (Previously Presented) A read head, comprising:
- a GMR spin valve stack including at least a pinned layer and a free layer;
 - a pair of shields, one disposed on either side of the GMR spin valve stack, with one of the shields being formed to include integral side shields that substantially enclose the GMR spin valve stack between the pair of shields; and
 - an insulated layer of permanent magnet material disposed between the shields and abutting the free layer.
28. (Original) A read head as defined in claim 27, wherein the GMR spin valve stack is configured to operate in a current perpendicular to plane (CPP) mode.
29. (Original) A read head as defined in claim 28, wherein the pair of shields are electrically conductive and wherein the GMR spin valve stack includes an electrode at the top thereof and an electrode at the bottom thereof.
30. (Original) A read head as defined in claim 27, wherein the GMR spin valve stack is configured to operate in a current in plane (CIP) mode.

31. (Original) A read head as defined in claim 30, further including electrically conductive leads that are with the permanent magnet material in a gap formed between the pair of shields.

32. (Previously Presented) A read head as defined in claim 31, further including a layer of insulating material on either side of the permanent magnet material and conductive leads at either end of the GMR spin valve stack.

33. (Previously Presented) A read head as defined in claim 27, further including a pair of gap layers of insulating material, one disposed on either side of the permanent magnet material to form a gap between the pair of shields in the regions at either end of the GMR spin valve stack.

34. (Original) A read head as defined in claim 33, wherein the gap layer is deposited in a self-aligned process.

35. (Original) A read head as defined in claim 33, wherein the gap layer includes a portion that covers at least portions of the sides of the stack.

36. (Previously Presented) A read head as defined in claim 27, wherein the free layer has opposed ends and the layer of permanent magnet material abuts at least a portion of the ends of the free layer.

37. (Previously Presented) A read head as recited in claim 21, wherein at least a portion of the electrode at the top of the GMR spin valve stack is located between the pair of regions of patterned exchange material.

38. (Previously Presented) A read head, comprising:
a GMR spin valve stack including at least a pinned layer and a free layer;

a pair of shields, one disposed on either side of the GMR spin valve stack, with one of the shields being formed to include integral side shields that substantially enclose the free layer between the pair of shields; and

an insulated layer of permanent magnet material disposed between the shields and abutting opposite ends of the GMR spin valve stack.

39. (New) The read head of claim 19, wherein the separated regions of patterned exchange bias material are located between the free layer and an electrode.

40. (New) The read head of claim 39, wherein the electrode is formed over an upper surfaces of the separated regions of patterned exchange bias material and between the separated regions of patterned exchange bias material.

41. (New) The read head of claim 39, wherein a gap layer is located between sides of the separated regions of patterned exchange bias material and the pair of shields.

42. (New) The read head of claim 19, wherein sides of the free layer and the pinned layer of the GMR spin valve stack are aligned.

43. (New) The read head of claim 42, wherein sides of the separated regions of patterned exchange bias material are aligned with the sides of the free layer and the pinned layer of the GMR spin valve stack.

44. (New) The read head of claim 43, wherein the separated regions of patterned exchange bias material are located between the free layer and an electrode, and wherein sides of the electrode are aligned with sides of the separated regions of patterned exchange bias material

45. (New) The read head of claim 27, wherein the insulated layer of permanent magnet material comprises:

a first insulating layer abutting a lower portion of the GMR spin valve stack;
a permanent magnet material layer abutting the free layer of the GMR spin valve stack; and
a second insulating layer formed over the permanent magnet material layer.

46. (New) The read head of claim 45, wherein the first insulating layer abuts the pinned layer of the GMR spin valve stack and an electrode contacting the pinned layer.

47. (New) The read head of claim 45, wherein the permanent magnet material layer has a thickness that is substantially equal to a thickness of the free layer of the GMR spin valve stack.

48. (New) The read head of claim 27, wherein the insulated layer of permanent magnet material comprises:

a first insulating layer abutting a lower portion of the GMR spin valve stack; and
a permanent magnet material layer abutting the free layer of the GMR spin valve stack; and
wherein the integral sides shields of the one of the shields substantially enclose at least a portion of the permanent magnet material layer abutting the free layer.

49 (New). The read head of claim 48, wherein the insulated layer of permanent magnet material further comprises a second insulating layer formed over the permanent magnet material layer;
and

wherein the integral sides shields of the one of the shields substantially enclose at least a portion of the second insulating layer.

50. (New) The read head of claim 38, wherein the insulated layer of permanent magnet material comprises:

a first insulating layer abutting a lower portion of the GMR spin valve stack;

a permanent magnet material layer abutting the free layer of the GMR spin valve stack; and
a second insulating layer formed over the permanent magnet material layer.

51. (New) The read head of claim 50, wherein the first insulating layer abuts the pinned layer of the GMR spin valve stack and an electrode contacting the pinned layer.

52. (New) The read head of claim 50, wherein the permanent magnet material layer has a thickness that is substantially equal to a thickness of the free layer of the GMR spin valve stack.

53. (New) The read head of claim 38, wherein the insulated layer of permanent magnet material comprises:

a first insulating layer abutting a lower portion of the GMR spin valve stack; and
a permanent magnet material layer abutting the free layer of the GMR spin valve stack; and
wherein the integral sides shields of the one of the shields substantially enclose at least a portion of the permanent magnet material layer abutting the free layer.

54 (New). The read head of claim 53, wherein the insulated layer of permanent magnet material further comprises a second insulating layer formed over the permanent magnet material layer;
and
wherein the integral sides shields of the one of the shields substantially enclose at least a portion of the second insulating layer.